

Claims

1. A high-pressure discharge lamp lighting device comprising a power conversion unit for supplying AC power to a high-pressure discharge lamp as a load with a DC power supply as an input power supply for performing all lighting or dimming lighting, wherein in an area where the voltage across the high-pressure discharge lamp grows as dimming deepens, the output characteristic of said power conversion unit is a characteristic for increasing output current of said power conversion unit in response to an increase in output voltage of said power conversion unit.
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2. The high-pressure discharge lamp lighting device as claimed in claim 1, wherein the ratio of the increase in the output current to the increase in the output voltage is roughly constant.
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3. The high-pressure discharge lamp lighting device as claimed in claim 1, wherein the ratio of the increase in the output current to the increase in the output voltage is increased as dimming deepens.
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4. The high-pressure discharge lamp lighting device as claimed in claim 1, wherein the output characteristic of said power conversion unit is a characteristic for setting the ratio
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of the increase in the output current to the increase in the output voltage roughly to 0 in the range in which the voltage across the high-pressure discharge lamp is from 0 to an arbitrary voltage and the output characteristic of said power conversion unit is a characteristic for increasing the output current in response to the increase in the output voltage in the range in which the voltage across the high-pressure discharge lamp is larger than the arbitrary voltage.

10 5. The high-pressure discharge lamp lighting device as claimed in claim 4, wherein the value of the arbitrary voltage is made larger as dimming becomes deeper.

15 6. The high-pressure discharge lamp lighting device as claimed in claim 4, wherein said power conversion unit has a lighting time integrating timer for counting the cumulative time of lighting and that the value of the arbitrary voltage is increased in response to the count of the lighting time integrating timer and dimming is deepened in response to the 20 count of the lighting time integrating timer.

25 7. The high-pressure discharge lamp lighting device as claimed in any of claims 1 to 6, wherein in an area where the voltage across the high-pressure discharge lamp becomes roughly constant or becomes small as dimming deepens, the

output characteristic of said power conversion unit is a characteristic for continuously changing the ratio of the increase in the output current to the increase in the output voltage from a negative value to 0 as dimming deepens.

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8. The high-pressure discharge lamp lighting device as claimed in any of claims 1 to 6, wherein said power conversion unit comprises a current detection circuit for outputting voltage responsive to current flowing into the high-pressure discharge lamp, a voltage detection circuit for outputting voltage responsive to the voltage across the high-pressure discharge lamp, and a DC voltage source for outputting voltage responsive to a dimming signal from a dimmer and has a control circuit operating so that the output voltage of the current detection circuit roughly matches the sum of the output voltage of the voltage detection unit and the output voltage of the DV voltage source.

9. The high-pressure discharge lamp lighting device as claimed in any of claims 1 to 6, wherein said power conversion unit has a current detection circuit for detecting current flowing into the high-pressure discharge lamp, a voltage detection circuit for detecting the voltage across the high-pressure discharge lamp, a DC voltage source for outputting voltage responsive to a dimming signal from a dimmer,

a switching circuit for selecting and outputting the output voltage of the DC voltage source changing in response to the dimming signal from the dimmer until the detection voltage of the voltage detection circuit is any desired value and
5 outputting the voltage equivalent to the sum of the output voltage of the voltage detection unit and the output voltage of the DV voltage source if the detection voltage of the voltage detection circuit is larger than the desired value, and a control circuit operating so that the current detection value
10 detected by the current detection circuit roughly matches the output value of the switching circuit.

10. The high-pressure discharge lamp lighting device as claimed in claim 9, wherein the desired value of the switching
15 circuit changes with the output voltage of the voltage detection circuit.

11. The high-pressure discharge lamp lighting device as claimed in any of claims 1 to 6, wherein said power conversion
20 unit has a current detection circuit for detecting current flowing into the high-pressure discharge lamp, a voltage detection circuit for detecting the voltage across the high-pressure discharge lamp, a microcontroller for referencing a data table and outputting a current command value
25 in response to the detection voltage of the voltage detection

circuit and a dimming signal from a dimmer, and a control circuit operating so that the command value of the current responsive to the voltage detection value detected by the voltage detection circuit and the current detection value
5 detected by the current detection circuit roughly match.

12. The high-pressure discharge lamp lighting device as claimed in claim 11, wherein the output characteristic stored in the data table of the microcontroller is a characteristic
10 wherein the current command values relative to the voltage across the high-pressure discharge lamp are symmetrical with respect to a line with any desired current command value as the center.

15 13. A lighting fixture comprising a high-pressure discharge lamp lighting device as claimed in any of claims 1 to 12.